

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

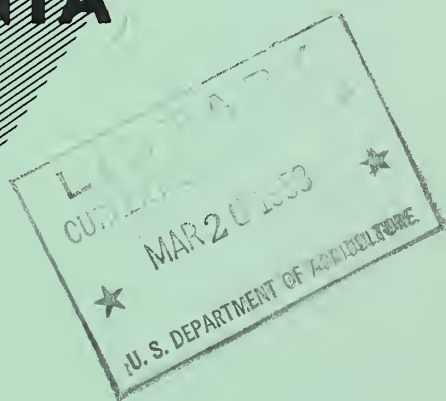
M.102 1.941
L6722

LABOR AND POWER

Used for Farm
Enterprises

PENNSYLVANIA

1950



by Reuben W. Hecht and Q. Martin Morgan

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS,

WASHINGTON, D. C.

FEBRUARY 1953

PREFACE

The Bureau of Agricultural Economics makes annual estimates of the total man-hours of labor used in farming in the nine geographic divisions and in the United States. 1/ Comparable data have also been developed for each State for 2 years. 2/ These estimates are made by applying average man-hours per acre or per head to the official estimates of acreages of crops and numbers of livestock. Man-hours per acre or per head vary from year to year, depending on yields, degree of mechanization, and other factors. Labor rates per acre and per head are not the result of special surveys, they are estimates based on secondary sources such as farm-management reports, studies of costs of production, and analyses of changes in farm practices and mechanization. These sources provided considerable data for some enterprises and areas and a great deal less for others.

The survey upon which this report is based was undertaken to provide current data as an aid in keeping these series up to date. It was conducted in four States: Idaho, Indiana, Mississippi, and Pennsylvania. Publications presenting the results of the survey in Idaho and Indiana are available. 3/ A similar report is being prepared for Mississippi.

1/ See "Gains in Productivity of Farm Labor", U.S.D.A. Tech. Bul. 1020, 1950.

2/ See "Labor Requirements for Crops and Livestock", U. S. Bureau of Agricultural Economics, F.M. 40, 1943 (Processed) and "Farm Labor Requirements in the United States, 1939 and 1944", U. S. Bureau of Agricultural Economics, F.M. 59, 1947 (Processed).

3/ See "Labor and Power Used for Farm Enterprises, Idaho, 1950", U. S. Bureau of Agricultural Economics, F.M. 95, 1952 (Processed) and "Labor and Power Used for Farm Enterprises, Indiana, 1950", U. S. Bureau of Agricultural Economics, F.M. 100, 1952 (Processed).

ACKNOWLEDGEMENTS

Appreciation is extended to the Pennsylvania farmers who supplied information and to Paul E. Strickler who supervised the field party. Assistance was given by many other members of the Bureau of Agricultural Economics and of Pennsylvania State College.

LABOR AND POWER USED FOR FARM ENTERPRISES,
PENNSYLVANIA, 1950

by

Reuben W. ²Hecht, and Q. Martin Morgan, 1/
Agricultural Economists

CONTENTS

Page	Page
How the survey was conducted.... 1	Oats..... 9
The questionnaire..... 3	Potatoes..... 10
Appraisal of survey method..... 4	Tomatoes for processing..... 11
Labor and power requirements..	Peas for processing..... 11
for crops..... 5	Cabbage for fresh market..... 12
Corn for grain and silage.... 5	Sweet corn..... 12
Alfalfa hay..... 6	Fruit..... 13
Clover and timothy hay..... 7	Labor requirements for livestock... 13
Clover seed..... 8	Milk cows and young dairy stock. 14
Wheat..... 8	Chickens..... 14
Buckwheat..... 8	Labor requirements for farm.....
Barley..... 9	maintenance..... 15

HOW THE SURVEY WAS CONDUCTED

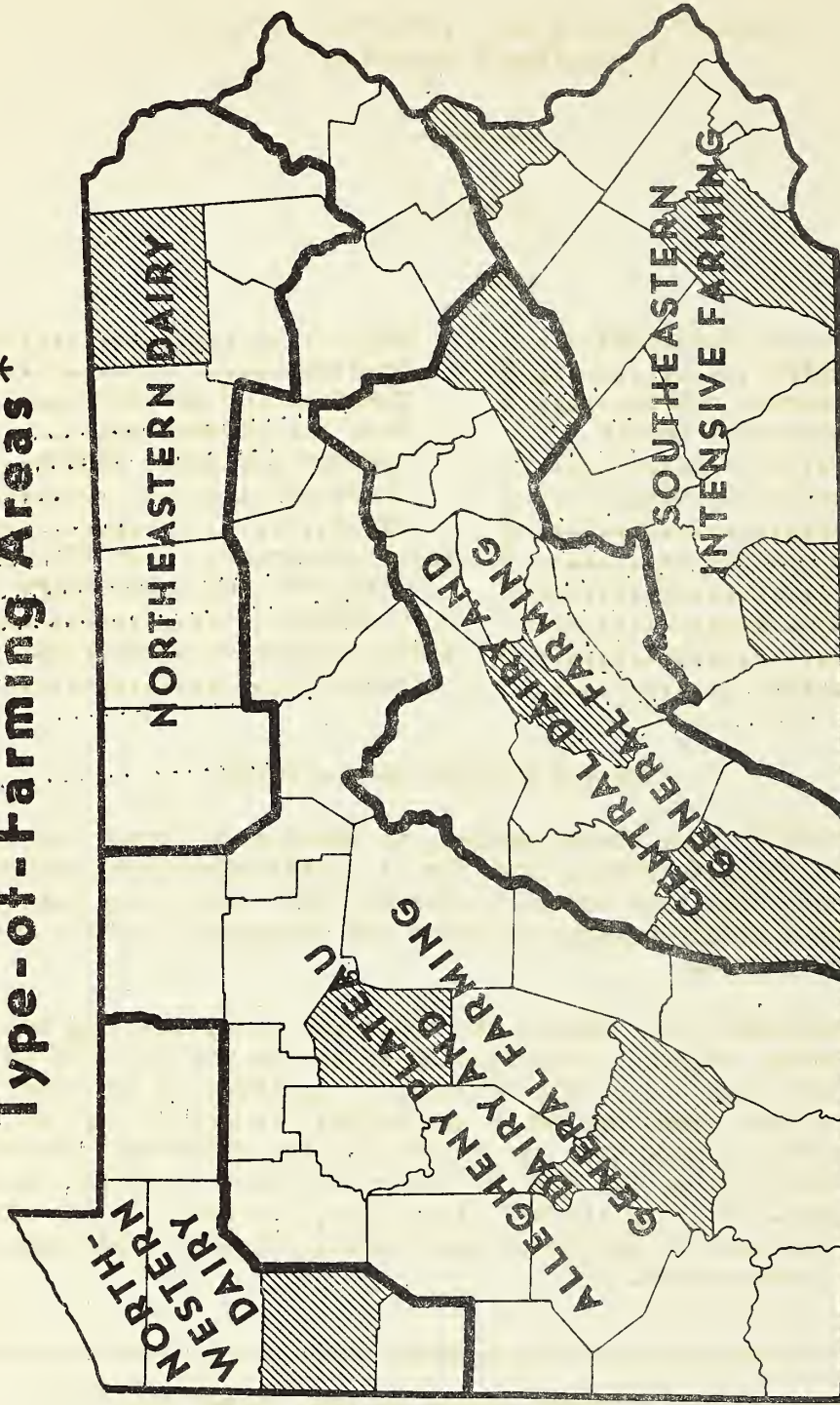
A "locality" type questionnaire, in which each farmer was asked to answer for his locality rather than for his particular farm, was used in the survey upon which this report is based. This particular approach was used to obtain a wider coverage of areas and enterprises with a given quantity of resources.

As indicated by the map on the following page, sampling was done by type-of-farming areas. A representative county was selected within each area. More than one county was sampled in three of the areas, primarily because some crops are grown extensively in only a part of an area. Obtaining records in more than one county has the additional advantage of more widely distributing the records for enterprises important in all parts of an area. To simplify the discussion, the names of the areas are shortened in the text to Southeastern, Central, Allegheny Plateau, North-western, and Northeastern.

1/ Mr. Morgan is now with the Office of Foreign Agricultural Relations, United States Department of Agriculture.

PENNSYLVANIA

Type-of-Farming Areas*



Sample counties

* ADAPTED FROM USDA INFORMATION BULLETIN NO. 3

In selecting farmers to interview within each sample county, persons living in the county were asked to prepare lists of "well-informed farmers" who would represent the entire range in size of crop and livestock enterprises, and location within the county. Greatest reliance was placed upon the county extension agents, but others who prepared lists in the various counties included Production and Marketing Administration committeemen, other representatives of the United States Department of Agriculture, dealers in farm supplies, and representatives of companies that process farm products such as milk, fruits, and vegetables. Farmers from each part of the county who appeared on these independent lists were interviewed.

THE QUESTIONNAIRE

The questionnaire was composed of three records: Labor requirements for crops, for livestock, and for farm maintenance. Completed records were obtained from farmers in several combinations and not necessarily one of each from every farmer interviewed.

Each farmer from whom a crop record was obtained, was asked to indicate the operations performed in growing, harvesting, and marketing one or more of the crops he had grown for several years; and for each operation, the percentage of the acreage done with each kind and size of power unit and machine and the hours used per acre. He was asked to supply the average yield in his locality in the last few years. For certain crops other pertinent information was requested, such as the number of fruit trees per acre. Data were obtained for bearing fruits only.

For livestock, each farmer was asked to give the number of each kind on his farm, and to estimate for a comparable size of herd or flock in his locality the average time spent during each season in doing daily chores and other jobs. He was also asked to give an estimate of average production items, such as milk per cow, eggs per hen, and selling weights of meat animals.

For farm maintenance, each farmer was asked to estimate the average time spent per year on each of several farm-maintenance jobs on farms in his locality that were similar to his farm in size and other respects. Each farmer reporting farm-maintenance requirements was also asked to indicate the average number of hours spent at farm work per year, by kind of worker, on farms of comparable size in his locality.

Farm-maintenance work includes jobs such as repair of machinery; construction and maintenance of buildings, fences, and drainage structures; soil conservation work that is not part of a regular crop operation; work on forests and permanent pastures; and time for business trips, other farm business, and miscellaneous jobs.

APPRAISAL OF SURVEY METHOD

This locality survey was set up on the assumption that, even though farming methods change rapidly, alert farmers keep abreast of local changes. They know the kinds and sizes of power units and machines used by their neighbors in producing crops. They know the kind and number of operations usually performed and how much time each takes. Consequently, when farmers are questioned systematically regarding time requirements for crop production in their locality, as they were in this survey, a moderate number of records will yield averages that do not differ greatly from those derived from individual farm questionnaires. Comparison of information obtained in this survey and those collected by the use of individual farm questionnaires lends credence to this assumption. 1/

For several reasons, many farmers find it difficult to report accurately the amount of time spent on the different livestock enterprises. Time spent on livestock is more difficult to report than that spent on crops, particularly when it is requested on a locality basis. Opportunity to observe the time needed for livestock chores on neighboring farms is much less than for crops.

Frequently, parts of the chore work for a particular kind of livestock are done by different persons and often children are involved. The division of work among the different persons may be on the basis of skill as well as the amount of strength demanded by the various jobs. Even with only one person concerned, the flow of chore work on many farms is by kind of job rather than by type of livestock. For example, the feeding of more than one type of livestock is usually an uninterrupted task rather than continuous work for one type of livestock. These things, however, affect similarly data given by farmers regardless of whether they report for individual farms or for localities.

Similar problems arise in collecting data regarding time for farm-maintenance jobs, as in collecting data on labor requirements for livestock. Farm maintenance work also is done intermittently and farmers find it hard to think in terms of total time spent on the various jobs.

In any survey, the responses to any question that require a numerical answer vary considerably. In this survey, there appeared to be more than the usual proportion of high answers to questions on yields of some crops, some of the livestock production items, and the total hours spent at farm work, particularly by farm operators. The

1/ For such comparisons see the two previous publications based on this survey that are listed in footnote 3 of the Preface.

high responses may have resulted from a variety of causes, but a significant one may have been that figures which represented an "average" for more than one year were requested. Farmers probably tend to think of yields received in the more favorable years as close to rather than above the average. Farmers may also tend to think in terms of average hours worked per day for rush job periods rather than in terms of average hours per day worked for the entire year or for the total period of time during which each individual farm worker is employed. Data from the census, the Crop Reporting Board and other sources facilitated thorough checking and editing of records received in this survey.

LABOR AND POWER REQUIREMENTS FOR CROPS

In this survey requirements were obtained for 16 crops. Summaries of the results are presented in tables 1 to 15. Data were obtained for corn in all five areas. The number of areas in which data were collected for other crops varies from four each for oats and clover and timothy hay, to one only for some vegetable and fruit crops. Average man- and power-hours per acre are shown to the nearest one-hundredth of an hour, even though that degree of accuracy does not exist in the data. This was done to prevent the time for some operations from dropping out of the average for the total acreage. Another option would have been to do more rounding and footnoting.

Corn for Grain and Silage

In Pennsylvania the acreage of corn harvested for all purposes is exceeded only by clover and timothy hay. Labor and power requirements were obtained in this survey of corn for grain in the Central, Allegheny Plateau, and Northwestern areas and of corn for silage in all five type-of-farming areas (table 1).

Requirements of corn for grain and those of corn for silage were obtained separately. But for all practical purposes, preharvest practices and requirements were identical and the preharvest data were combined for summarization. The usual sequence of preharvest operations for corn was spreading manure, plowing, disking, harrowing, planting, and cultivating. Man-hours per acre for preharvest work ranged from 10.6 in the Central area to 14.5 in the Northeastern area. Spreading manure was the most time-consuming operation and the variations among areas in total man-hours per acre for all preharvest operations were primarily owing to differences in time used for this operation. The acreage of corn on which manure was spread ranged from 35 percent in the Central area to 87 percent in the Allegheny Plateau.

Average man-hours for harvesting grain were about 14 hours per acre in the Central and Allegheny Plateau areas and 8 hours in the Northwestern area. The less time-consuming methods of harvest were followed in the Northwestern area. Mechanical pickers were used to harvest 64 percent of

the acreage in that area, 54 percent in the Allegheny Plateau, and 42 percent in the Central area. Corn for grain was harvested from the standing stalk by hand on 18 percent of the acreage in the Central area, on 12 percent in the Allegheny Plateau, and on 32 percent in the Northwestern area. On the remaining acreage in each area, the corn was cut and shocked before husking. In the Allegheny Plateau area, more than three times as much was cut by hand as with binders, but in the other areas binding was the usual method of cutting. It took more than twice as many man-hours to cut by hand and shock than to cut with binder and shock.

In the Central and Northwestern areas, the grain on about half of the shocked fodder was husked by hand. Husker-shredders were used on the remaining half. In the Allegheny Plateau area, almost 90 percent of the shocked corn was husked by hand. It took about half the time to do this job with husker-shredders as with hand methods. When the corn has been picked from the standing stalk, the stover can be bound, but broken and trampled stalks are a hinderance. When the stover is to be utilized, most farmers prefer the cut-shock-husk method. Total man-hours per acre of grain were 25.1 in the Central area, 28.5 in the Allegheny Plateau, and 20.8 in the Northwestern areas. Corresponding figures for tractor-hours were 15.2, 17.7, and 15.2. For horse-hours, the figures were 5.7, 1.0, and 7.6.

Harvesting corn for silage required from 10.5 man-hours per acre in the Northwestern area to 15.6 man-hours in the Allegheny Plateau area. In the Northwestern area field-forage harvesters were used on 73 percent of the acreage compared with only 14 percent in the Allegheny Plateau area. This largely accounts for the difference in labor requirements as it took less than half the time to put up silage with field-forage harvesters than with stationary cutters in these areas. More of the cutting of silage corn was done with binders than the corn for grain.

Alfalfa Hay

Almost 20 percent of the hay harvested in Pennsylvania is alfalfa. This includes mixed hay which contains a predominance of alfalfa. The information in table 2 applies to these mixtures as well as to pure stands of alfalfa. Few records were obtained on establishing a stand and the following information pertains only to harvesting.

Alfalfa is usually cut for hay from two to three times in different parts of the State, depending chiefly on length of growing season, age of stand, and moisture supply. The Central and Allegheny Plateau areas, where records for alfalfa hay were obtained, average 2.6 and 2.4 cuttings, respectively. In each of these areas both loose and baled hay is stored in barns. The greater portion of the loose hay is loaded with hayloaders and unloaded with power forks. Buckrakes are sometimes used

to pick-up and haul the hay, which is then generally put into the barn with a power fork. Loading and unloading loose hay by hand requires substantially more labor than mechanical methods and very little is now handled in this way. The difference in time required between hand and mechanical methods of loading and unloading baled hay is less than for loose hay. Consequently less time is saved by converting from hand to mechanical methods of loading and unloading baled hay. Then, too, a bale loader and elevator represent additional investment in haying machinery. Although both hand and mechanical methods are used, a major portion of the baled hay is loaded and unloaded by hand.

Harvesting alfalfa required 9.0 man-hours per acre and 3.9 per ton in the Central area, while 8.4 man-hours per acre and 4.2 per ton were used in the Allegheny Plateau area. Yields reported for these areas were 2.3 and 2.0 tons per acre, respectively. About 20 percent less labor was needed to handle a ton of baled hay from windrow to storage than for loose hay. In the Central area, 2.7 man-hours were used per ton of loose hay for these operations and 2.2 man-hours for baled hay. Comparable figures for the Allegheny Plateau area were 3.1 for loose hay and 2.4 for baled hay.

Clover and Timothy Hay

Pennsylvania has greater acreages of clover and timothy hay than of any other crop. This hay constitutes more than 75 percent of the hay harvested in the States. Clover and timothy hay includes pure stands and the mixtures that contain a prevalence of timothy or of one or more of the clovers. Clover and timothy is cut fewer times a year than alfalfa. Yields are lower and proportionately fewer man-hours per acre are required. Labor and power requirements for harvesting clover and timothy hay were obtained in the Central, Allegheny Plateau, Northwestern, and Northeastern areas (table 3).

Man-hours required to harvest an acre of clover and timothy hay were 6.2 in the Central, 5.6 in the Allegheny Plateau, 7.2 in the Northwestern, and 7.1 in the Northeastern areas. Yields per acre for the four areas were respectively, 1.5, 1.4, 1.9, and 1.9 tons. Man-hours per ton ranged from 3.7 in the Northeastern area to 4.1 in the Central area. This difference was primarily owing to the fact that more time was spent on mowing in the Central area than in the Northeastern area. Approximately the same average amount of labor (3.1 man-hours per ton) was required to handle a ton of loose hay from windrow to storage in each of the four areas. From 13 to 30 percent less labor was needed to bale and store a ton of baled hay than to move a ton of loose hay from windrow to storage in the 4 areas. The portion of the crop baled ranged from 25 percent in the Northwestern area to 45 percent in the Central area.

Clover Seed

Most of the clover seed harvested in Pennsylvania is red clover. It is harvested on from 25,000 to 30,000 acres annually. This is equivalent to approximately $1\frac{1}{2}$ percent of the acreage of clover and timothy hay. Harvesting requirements for clover seed were obtained for two areas - the Allegheny Plateau and the Northwestern area (table 4).

Combining was the common method of harvesting the seed in both areas. The principal difference between the two areas in method of harvest was that 30 percent of the acreage was windrowed before combining in the Northwestern area. This accounts for the greater number of man-hours per acre in that area. Harvesting clover seed required 4.0 man-hours per acre in the Northwestern area and 3.5 man-hours in the Allegheny Plateau. Corresponding figures for tractor-hours per acre were 2.8 and 2.0, respectively.

Wheat

Wheat comprises about half of the acreage of small grains harvested in Pennsylvania. In the areas in which records were obtained, the land was plowed in preparing for wheat (table 5). Around a sixth of the acreage was disked and almost all was harrowed or cultivated an average of three times. Total man-hours for preharvest operations were 7.4 in the Central area and 4.8 in the Allegheny Plateau. The higher requirements in the Central area resulted from the greater use of horses and more time in spreading manure and plowing.

Combining the standing grain and the bind-shock-thresh method were each used to harvest about half the wheat in the Allegheny Plateau area. In the Central area, however, more than two-thirds of the crop was combined. Most of the threshing was done directly from the shock but some of the bound grain was stored in the barn and later threshed from the barn. The bind-shock-thresh method of harvesting wheat took around 7.5 man-hours per acre. Average labor requirements for all methods of harvesting were 5.0 man-hours per acre in the Allegheny Plateau and 3.9 in the Central area. Straw left by the combine was raked and baled on nearly 30 percent of the acreage in the Central area. It was raked and baled or hauled loose on almost 40 percent in the Allegheny Plateau. Straw required an average of 0.8 man-hour per acre in the Central area and 1.3 man-hours in the Allegheny Plateau area.

Buckwheat

The acreage of buckwheat harvested in the State in 1950 was only 50 percent of the 10-year average from 1940 to 1949. In 1950, however,

25 percent of the United States crop was harvested in Pennsylvania. About half of the State acreage is in the Allegheny Plateau area. In this survey records for buckwheat were obtained in that area and in the Central area (table 6).

Operations on buckwheat up to harvest were similar in the two areas, but labor requirements were 75 percent higher in the Central area because horses were used for power to a greater extent. Almost 14 horse-hours per acre were used for preharvest operations in the Central area and less than 1 per acre in the Allegheny Plateau area. However, almost 60 percent fewer tractor-hours were required per acre in the Central area.

As was true for wheat, about half the buckwheat in the Allegheny Plateau area was harvested with combines. All the buckwheat was harvested by binding and threshing in the Central area. Because of this difference in method of harvest, total man-hours for harvesting were higher in the Central area even though the time required to bind, shock, and thresh an acre was about the same in the two areas.

Total man-hours per acre of buckwheat were higher in the Central area because of the more extensive use of horses and because of the method of harvest. Total tractor-hours per acre in the Allegheny Plateau were almost double those in the Central area, but horse-hours were several times higher in the Central area.

Barley

Barley is grown in all areas of the State. Most of it is spring barley except in the Southeastern intensive farming area where considerable winter barley is grown. Barley is adapted to the same soil and climatic conditions and is grown in the same areas as wheat, but the acreage of barley is considerably less than that of wheat. Data for barley were obtained in the Central, Allegheny Plateau, and Northwestern areas (table 7).

Operations in preparing land for barley, including spreading manure, plowing, disking, and harrowing, were similar to those for wheat. Pre-harvest operations for barley required 4.9 man-hours per acre in the Central area, 7.2 in the Allegheny Plateau area, and 7.4 in the Northwestern area.

In the Central area, approximately two-thirds of the barley was combined and one-third was threshed. In the Allegheny Plateau, almost half and in the Northwestern area over a fifth was harvested by the binder-shock-thresh method. The methods of harvest are reflected in the man-hour requirements for harvesting the grain. Removing straw on the acreage of barley combined, required an average of 1.1 man-hours per acre in the Allegheny Plateau, 0.6 in the Northwestern area, and 1.0 in the Central area.

Oats

Of the small grains, the acreage of oats in Pennsylvania is exceeded only by wheat. The same sequence of preharvest operations for

oats was followed in the four areas in which records were obtained (table 8). Labor requirements up to harvest in the Northwestern area were more than $1\frac{1}{2}$ hours less than in any other area. This occurred principally because tractors and larger tillage implements were used to a greater extent and because manure was spread on a smaller proportion of the acreage. Preharvest operations required 4.5 man-hours per acre in that area, 6.2 in the Allegheny Plateau, and 7.0 man-hours in the Central and Northeastern areas.

For harvesting oats 4.1 man-hours per acre were required in the Central area where two-thirds of the crop was combined. Two-fifths or more was harvested by the bind-shock-thresh method in the other areas and time for harvesting the grain ranged from 4.8 to 5.9 man-hours per acre. Removing oat straw left by the combines required from 0.9 man-hour per acre in the Northeastern and Northwestern areas, to 1.2 in the Central area. Straw was raked and baled or hauled loose from about a third of the acreage of oats in the Central, Allegheny Plateau, and Northeastern areas and from almost half of the acreage in the Northwestern area.

Potatoes

The acreage of potatoes has trended downward in Pennsylvania. The 1950 acreage harvested was only 59 percent of the 1940-49 average. Production in the State in 1950, however, was approximately equal to the 10-year average.

Production of potatoes is becoming more specialized. Special equipment such as planters, sprayers, and diggers requires an investment greater than a farmer who grows potatoes for family use can afford. Potatoes are produced for both commercial and home use in all five areas of Pennsylvania, but the percentage of farms growing commercial potatoes has declined in recent years. Data were obtained for commercial potatoes in the Southeastern, Central, and Northwestern areas (table 9).

Preharvest operations usually included spreading manure, plowing, disking, harrowing, cutting seed, planting, harrowing or weeding, cultivating, and spraying. Some of these operations, such as disking, harrowing, weeding, cultivating, and spraying, were performed more than once. About 26 man-hours per acre were required for preharvest work in the Southeastern area, 33.4 in the Central area, and 38.4 in the Northwestern area.

Man-hours per acre for harvesting potatoes were 68.5 in the Southeastern, 74.1 in the Central, and 80.2 in the Northwestern area. Yields per acre were 326, 354, and 315 bushels, respectively, for these areas. Use of potato harvesters was reported only in the Southeastern area; where 20 percent of the acreage was harvested with these machines. This method of harvest required about 32 percent less labor per acre than when the potatoes were plowed out and picked up by hand.

Loading, hauling, storing, and grading required the same number of man-hours per bushel regardless of method of harvest.

Total man-hours per acre were 94.4 in the Southeastern, 107.6 in the Central, and 118.6 in the Northwestern area. This was equivalent to one-half hour per 100 pounds of potatoes in the Southeastern and Central areas and to 0.6 man-hour per 100 pounds in the Northwestern area. Total tractor-hours were 21.2 per acre in the Southeastern, 19.9 in the Central, and 26.6 in the Northwestern area. Truck-hours were 5.3, 11.2, and 18.5, respectively. Truck-hours were low in the Southeastern area because a larger portion of the crop was sold at the farm. Horses were used very little in potato production in the Southeastern and Central areas. In the Northwestern area, horses were used an average of 6.5 hours per acre, primarily for spreading manure, planting, and cultivating.

Tomatoes for Processing

In Pennsylvania, vegetables are grown commercially for processing and to some extent for fresh consumption. Tomatoes for processing account for almost 90 percent of the tomatoes grown in the State.

Total man-hours per acre for preharvest work averaged 37.4 in the Southeastern and 28.5 in the Central area (table 10). The larger number of hours in the Southeastern area was owing mainly to more time spent in spreading manure, fertilizing, cultivating, and spraying. Manure was spread on 98 percent of the acreage in that area and on only 44 percent for the Central area. Man-hours per acre for spreading manure were 11.0 in the Southeastern and 6.5 in the Central area; for cultivating, 4.8 and 3.4, respectively; and for spraying, 8.6 and 5.1.

Labor requirements for picking and hauling tomatoes were 157 man-hours per acre in the Southeastern and 135 in the Central area where yields were lower. This was equivalent to 13.9 man-hours per ton in the Southeastern area and 13.2 in the Central area. The tomatoes were picked fewer times but a greater tonnage was gathered each time over in the Central than in the Southeastern area. This accounts for the greater number of man-hours per ton in the latter area.

Total man-hours per acre were 194.6 in the Southeastern area and 163.6 in the Central area. This meant 17.2 and 16.0 man-hours per ton, respectively. Total tractor-hours per acre were 25.5 in the Southeastern area and 16.0 in the Central area. Truck-hours were 20.0 and 14.0 per acre respectively, in the two areas. Only 1.4 horse-hours per acre were used on the average in the Southeastern area, and in the Central area horses were used very little.

Peas for Processing

Green peas grown for sale in Pennsylvania are generally sold to processors. Most of them are grown in the Southeastern intensive farming area. In preparing the land for peas, portions of it were manured,

limed, and fertilized (table 11). All land was plowed and put in shape with disks and harrows and seeded with drills. In harvesting, the peas were mowed, windrowed, loaded, and hauled to a viner. A total of 20.3 man-hours was required per acre. This was almost equally divided between preharvest work and harvesting. Tractor-hours per acre averaged 11.1 per acre, truck-hours, 4.3 and horse-hours, 0.2.

Cabbage for Fresh Market

More than half of the preharvest work on cabbage for fresh market was for setting the plants (table 12). Plants, which are usually purchased rather than grown by the farmer, are started in greenhouses from 6 to 8 weeks before planting time. Plants are set with one- and two-row transplanters which require a crew of 4 or 5 men. One man drives the tractor, one or two ride the transplanter and set plants, one keeps the crew supplied with plants, and the other hauls water.

Man-hours for harvesting averaged 42.9 per acre. Picking the crop required 30.3 man-hours per acre and hauling to market 12.6 man-hours. Total labor and power requirements per acre were 81.5 man-hours 14.9 tractor-hours, and 6.2 truck-hours. Horses were used to a minor extent for cultivating.

Sweet Corn

In recent years approximately equal acreages of sweet corn for fresh market and for processing have been grown in Pennsylvania. Most of the records of labor and power requirements of sweet corn, both for fresh market and for processing, were obtained in the Central area. A few were taken in the Southeastern area but records from both areas were combined for summary.

About the same number of man-hours of labor was required up to harvest for both corn for fresh market and corn for processing (table 13). Time for harvesting and marketing, however, differed considerably between the two uses of the product.

Manure was spread on more of the land to be put into corn for processing, but, so far as corn for fresh consumption was concerned, the additional time for manuring was almost offset by the additional time spent on other operations. Preharvest man-hours per acre averaged 12.6 for fresh-market corn and 13.0 for corn for processing. An average of 35.1 man-hours per acre were required to harvest and haul sweet corn for fresh market and only 12.8 hours for corn for processing. Fresh-market corn was picked an average of 2.2 times and corn for processing was picked only once. Fresh-market corn was bagged before it was marketed. Corn for processing did not require this time-consuming operation.

The major commercial fruit-producing section of the State is in the Southeastern intensive farming area. Large quantities of cherries, however, are produced in the Northwestern area and apples are grown throughout the State. Peaches also are grown throughout the State but commercial production is limited mainly to the Southeastern area. Specialization in fruit production, similar to the trend toward specialization in potato production, has become apparent in the last decade. Many producers have found it advantageous to specialize in whatever fruit they can best produce or else to abandon commercial production entirely. The high expense of spraying and other care makes production on a commercial scale a high-risk enterprise. In this survey, data were obtained for apples in the Southeastern and Central areas, and for peaches and sour cherries in the Southeastern area (tables 14 and 15).

Peaches required more man-hours per acre for preharvest work than the other fruits. The major reason was that four-fifths of the peaches were thinned compared with a tenth of the apples and none of the cherries. In addition, it took more than twice as much time to thin an acre of peaches than to thin an acre of apples. In the Southeastern area, apples and cherries required about the same amount of time for preharvest work. Preharvest man-hours per acre in the Southeastern area averaged 46.1 for apples, 93.9 for peaches, and 48.9 for sour cherries. In the Central area an average of 36.2 man-hours was used for preharvest operations on apples.

Time required to harvest cherries (158 man-hours per acre) was much greater than for either apples or peaches. Fewer man-hours per bushel and per acre were required to harvest apples than to harvest peaches. Peaches bruise readily and require more careful handling. In the Southeastern area, only 37 man-hours were required to harvest an acre of apples, but it took 69 man-hours for an acre of peaches. Yields per acre for these two fruits in this area were 191 and 245 bushels, respectively.

LABOR REQUIREMENTS FOR LIVESTOCK

Dairying is a major farm enterprise in Pennsylvania. Dairy products account for about a third of the total cash farm income. But the dairy enterprise is more important than is apparent from the sale of dairy products, as sales of calves and dairy stock are included in sales of livestock. Poultry is also a relatively important enterprise in the State. Almost a tenth of the cash farm income is from poultry and poultry products. Other livestock production, except in a few local areas, is of minor importance. All livestock and livestock products account for approximately three-fourths of the total cash farm income.

In summarizing the data on labor requirements for livestock obtained in this survey, information for the Northeastern and Northwestern areas was combined because few records were obtained in each area. Data from the United States Census on numbers of livestock in the different

counties and areas and by size of herd or flock were used as weights in combining the survey data into area and State averages.

Milk Cows and Young Dairy Stock

In 1950, an average of 134 man-hours per milk cow or an equivalent of 2.12 man-hours per 100 pounds of milk was reported for the State (table 16). Man-hours per cow ranged from 131 in the Northwestern and Northeastern Dairy areas to 137 in the Allegheny Plateau area. Man-hours per 100 pounds of milk ranged from 2.01 in the Southeastern area to 2.38 in the Allegheny Plateau area. Man-hours per head of young dairy stock ranged from 24.1 in the Northwestern and Northeastern Dairy areas to 29.4 in the Southeastern area. The greater number of man-hours per head of young dairy stock in the Southeastern area may be attributed to fewer replacements being raised in that area.

Labor required per milk cow as related to certain factors, such as size of herd, is shown in table 17. Within the group of from 5 to 14 milk cows per herd, herds milked by hand averaged 9 and those milked by machine, 11 cows. The two additional cows in the machine-milked herds tended to lower man-hours per cow. Machine-milked herds, however, produced an average of 552 more pounds of milk per cow, and more labor was needed to handle it. If it is assumed that these influences offset each other, the use of a milking machine saved around 50 man-hours per cow per year. In herds of 9 to 11 cows, this means a saving of about 500 man-hours per herd per year. Actual savings per herd milked by machines in the State however, amount to more than 500 man-hours per herd because the average herd milked by machine has more than 10 cows.

Chickens

Man-hour requirements for hens in laying flocks were fairly uniform among the different parts of the State (table 18). The State average was 2.22 man-hours per hen. The rate of lay ranged only from 142 to 146 eggs per hen among areas and labor requirements for egg production from 1.50 to 1.67 man-hours per 100 eggs.

The size of laying flocks influenced greatly the man-hours needed per hen (table 19). It required 4.5 man-hours per hen for those in flocks of 99 hens and less, 2.4 man-hours per hen in flocks of 100 to 399, and 1.3 man-hours per hen in flocks of 400 and over. Requirements per 100 eggs for these three size of flock groups were 3.1, 1.7, and 0.9 man-hours, respectively.

Area differences in man-hours per chicken raised were small. An average of 46 man-hours was required per 100 chickens raised in the State (table 20).

LABOR REQUIREMENTS FOR FARM MAINTENANCE

All farm work required an average of a little more than 5,000 hours per farm in Pennsylvania in 1950 (table 21). Farm-maintenance work accounted for an average of 12.1 percent of the total number of hours spent on farm work. The percentage of the total time spent on farm-maintenance work ranged from 9.9 percent in the Central area to 14.1 percent in the Allegheny Plateau. These percentage differences among areas resulted from variations both in amount of time spent on farm maintenance and in total hours required for all farm work. The greatest average number of total hours per farm was reported for the Central area and the smallest numbers for the Allegheny Plateau and Southeastern areas. The operator and his family worked more hours, more labor was hired per farm, in the Central area than in the other parts of the State. Data from the United States Census on number of farms of different sizes in the various counties and areas were used as weights in computing State and area averages.

Data in table 22 indicate that the proportion of time spent on farm maintenance is about the same for all sizes of farms. Farm-maintenance work accounted for 11.3 percent of all farm work on farms with 69 or fewer total acres, 12.8 percent on farms with 70 to 139 acres, and 12.1 percent on farms with 140 or more acres.

An average of 612 hours per farm was required for maintenance jobs or overhead work. Business trips accounted for 26 percent of this amount, building construction and maintenance 21 percent, repair of machinery 17 percent, construction and maintenance of fences 11 percent, miscellaneous jobs 7 percent, conducting the farm business 6 percent, and work on permanent pasture 6 percent. The remaining 6 percent was about equally divided among work on farm forestry, drainage, and soil- and moisture-conservation jobs that were not a part of regular crop operations.

Table 2.- Alfalfa hay: Man- and power-hours per acre for harvesting indicated areas, Pennsylvania, 1950

Operation	Central dairy and general farming area 1/				Allegheny Plateau dairy and general farming area 2/			
	Acreage covered		Man-hours		Acreage covered		Man-hours	
	Percent	Times	Man-hours	per acre	Percent	Times	Man-hours	per acre
	age of : over	: per acre	: for total	age of	: over	: per acre	: for total	age of
	total	: once over	: acreage	total	: once over	: acreage	total	: once over
	Percent	Number	Hours	Hours	Percent	Number	Hours	Hours
Mow	100	2.6	0.66	1.72	100	2.4	0.66	1.58
Rake	100	2.6	.61	1.59	100	2.4	.61	1.46
Ted	4	2.0	.33	.03	5	2.5	.33	.04
Haul loose and store	50	2.6	2.37	3.08	35	2.4	2.56	2.15
Bale and store bales	50	2.6	1.96	2.55	65	2.4	2.02	3.15
Total man-hours				8.97				8.38
Total tractor-hours				5.70				5.14
Total truck-hours				.01				.22
Total horse-hours				.03				--

1/ From 24 records with an average yield of 2.3 tons per acre.

2/ From 15 records with an average yield of 2.0 tons per acre.

Table 4.- Clover seed: Man- and power-hours per acre for harvesting, indicated areas, Pennsylvania, 1950

Operation	Allegheny Plateau dairy and general farming area 1/			Northwestern dairy area 2/		
	Acreage covered		Man-hours	Acreage covered		Man-hours
	Percent: age of:	Times: over:	Man-hours: per acre: for total acreage	Percent: age of:	Times: over:	Man-hours: per acre: for total acreage
	total :	once over:	total :	total :	once over:	total :
	Per- cent	Num- ber	Hours	Per- cent	Num- ber	Hours
Mow	20	1.0	0.42	60	1.0	0.50
Rake	20	1.0	.33	60	1.0	.49
Ted	--	--	--	10	2.0	.80
Thresh and haul	20	1.0	5.50	30	1.0	4.80
Combine and haul	80	1.0	1.49	3/70	1.0	1.72
Clean	90	2.4	.50	60	2.0	.54
Total man-hours			3.52			4.04
Total tractor-hours			<u>2.00</u>			<u>2.77</u>
Total truck-hours			--			.01

1/ From 10 records with an average yield of 1.02 bu. per acre.

2/ From 10 records with an average yield of 0.99 bu. per acre.

3/ 30 percent combined from windrow.

Table 5.-- Wheat: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

Operation	Central dairy and general farming area 1/				Allegheny Plateau dairy and general farming area 2/			
	Acreage covered		Man-hours		Acreage covered		Man-hours	
	Percent- age of : total	Times : over	Man-hours : per acre : once over	Hours : acreage	Percent- age of : total	Times : over	Man-hours : per acre : once over	Hours : acreage
Spread manure	39	1.0	7.05	2.75	19	1.0	5.75	1.09
Plow	100	1.0	2.21	2.21	100	1.0	1.52	1.52
Disk	14	1.0	.49	.07	19	1.8	.41	.14
Harrow	90	2.8	.57	1.44	100	3.1	.35	1.08
Cultipack	8	1.0	.55	.04	12	1.0	.27	.03
Treat seed	18	1.0	.31	.06	---	---	---	---
Drill	100	1.0	.87	.87	100	1.0	.92	.92
Total preharvest			.87	7.44			.92	4.78
Combine 3/	70	1.0	2.24	1.57	52	1.0	2.64	1.37
Bind	30	1.0	1.23	.37	48	1.0	.98	.47
Shock	30	1.0	1.71	.51	48	1.0	1.54	.74
Thresh 3/	30	1.0	4.78	1.43	48	1.0	4.97	2.39
Total harvest (grain)				3.88				4.97
Rake stubble	29	1.0	.67	.19	39	1.0	.84	.33
Bale and store bales	29	1.0	1.92	.56	28	1.0	2.39	.67
Haul loose and store	---	---	---	---	11	1.0	2.50	.28
Total harvest (straw)				.75				1.28
Total man-hours				12.07				11.03
Total tractor-hours				Power-hours:				Power-hours
Total truck-hours				7.97				6.57
Total horse-hours				.18				.21
				3.82				1.93

1/ From 21 records with an average yield of 25 bu. of grain and 0.9 ton of straw per acre.

2/ From 17 records with an average yield of 27 bu. of grain and 1.0 ton of straw per acre.

3/ Includes hauling grain.

Table 6.-- Buckwheat: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

Operation	Central dairy and general farming area 1/				Allegheny Plateau dairy and general farming area 2/			
	Acreage covered		Man-hours		Acreage covered		Man-hours	
	Percent- age of total	Times over	Man-hours: per acre : once over : over	per acre : for total : acreage : total	Percent- age of total	Times over	Man-hours: per acre : once over : over	per acre : for total : acreage : total
	Percent	Number	Hours	Hours	Percent	Number	Hours	Hours
Spread manure	12	1.0	8.33	1.00	20	1.0	8.00	1.60
Plow	100	1.0	4.31	4.31	100	1.0	1.59	1.59
Disk	10	1.0	2.06	.21	31	1.6	.42	.21
Harrow	100	2.4	1.10	2.64	100	2.8	.36	1.01
Cultipack	--	--	--	--	13	1.0	.50	.06
Drill	100	1.0	1.13	1.13	100	1.0	.82	.82
Total preharvest				9.29				5.29
Combine 1/	--	--	--	--	51	1.0	2.62	1.34
Bind	100	1.0	1.33	1.33	49	1.0	1.19	.58
Shock	100	1.0	1.36	1.36	49	1.0	1.69	.83
Thresh 1/	100	1.0	4.83	4.83	49	1.0	4.77	2.34
Total harvest				7.52				5.09
Total man-hours				16.81				10.38
Total tractor-hours				Power-hrs.				Power-hrs.
Total truck-hours				3.93				7.18
Total horse-hours				.23				.28
				17.59				1.83

1/ From 11 records with an average yield of 25 bu. per acre.

2/ From 15 records with an average yield of 29 bu. per acre.

3/ Includes hauling grain.

Table 7.-- Barley: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

[illegible]

Table 8.- Oats: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

[illegible]

Table 9.-- Potatoes: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

Operation	Southeastern intensive farming area 1/				Central dairy and general farming area 2/				Northwestern dairy area 3/			
	Per- :cent- :age of :total	Man-hrs. :once :over	Man-hrs. :per acre :for :total	Man-hrs. :per acre :for :total	Per- :cent- :age of :total	Man-hrs. :once :over	Man-hrs. :per acre :for :total	Man-hrs. :per acre :for :total	Per- :cent- :age of :total	Man-hrs. :once :over	Man-hrs. :per acre :for :total	Man-hrs. :per acre :for :total
	Pct.	No.	Hrs.	Hrs.	Pct.	No.	Hrs.	Hrs.	Pct.	No.	Hrs.	Hrs.
Spread manure	57	1.0	6.57	3.74	64	1.0	9.90	6.34	94	1.0	7.71	7.25
Fertilize	--	--	--	--	25	1.0	.75	.19	12	1.0	2.00	.24
Plow	100	1.0	1.64	1.64	100	1.0	1.56	1.56	100	1.0	1.90	1.90
Disk	84	1.7	.57	.81	80	1.6	.59	.76	100	2.5	.51	1.28
Harrow	78	2.0	.36	.56	93	1.9	.50	.88	39	2.5	.33	.32
Cut seed	100	1.0	5.57	5.57	95	1.0	8.31	7.89	100	1.0	8.49	8.49
Plant 4/	100	1.0	2.94	2.94	100	1.0	2.85	2.85	100	1.0	3.57	3.57
Harrow	29	1.9	.25	.14	21	1.6	.50	.17	25	1.0	.29	.07
Weeder	75	3.1	.36	.84	57	1.6	.50	.46	75	3.0	.29	.65
Cultivate	100	3.8	.87	3.31	100	4.2	.72	3.02	100	3.9	1.11	4.33
Hoe	--	--	--	--	11	1.5	3.88	.64	11	1.0	13.00	1.43
Spray	100	13.1	.49	6.42	100	12.9	.67	8.64	100	9.8	.90	8.82
Total preharvest			25.97					33.40				38.35
Beat vines	35	1.0	.69	.24	22	1.0	.85	.19	12	2.0	1.00	.24
Spray vines	4	1.0	.74	.03	--	--	--	--	--	--	--	--
Dig	80	1.0	3.27	2.62	100	1.0	4.53	4.53	100	1.0	3.71	3.71
Pick up	80	1.0	28.97	23.18	100	1.0	30.09	30.09	100	1.0	28.91	28.91
Harvester	20	1.0	22.05	4.41	--	--	--	--	--	--	--	--
Haul and store	100	1.0	12.14	12.14	100	1.0	7.30	7.30	100	1.0	8.57	8.57
Grade	100	1.0	21.91	21.91	100	1.0	20.72	20.72	100	1.0	20.65	20.65
Haul to market	24	1.0	9.76	2.34	66	1.0	16.25	10.72	81	1.0	21.17	17.15
Load 6/	60	1.0	2.66	1.60	26	1.0	2.28	.59	19	1.0	5.10	.97
Total harvest			68.47					74.14				80.20
Total man-hours			94.44					107.54				118.55
Total tractor-hours			21.22					19.88				26.56
Total truck-hours			5.33					11.16				18.47
Total horse-hours			.07					.10				6.46
1/ From 12 records with an av. yield of 326 bu. per A. 2/ From 14 records with an av. yield of 354 bu. per A.												
3/ From 8 records with an av. yield of 315 bu. per A. 4/ Inc. Hauling seed to planter. 5/ Farm storage. 6/ Sold at farm.												

Table 10.- Tomatoes for processing: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

Operation	Southeastern intensive farming area 1/				Central dairy and general farming area 2/			
	Percent	Number	Hours	Man-hours	Percent	Number	Hours	Man-hours
	Percent- age of total	Times over	Man-hour per acre once over	per acre for total acreage	Percent- age of total	Times over	Man-hour per acre once over	per acre for total acreage
Spread manure	98	1.1	10.20	11.00	44	1.0	14.80	6.51
Plow	100	1.0	1.77	1.77	100	1.0	1.69	1.69
Fertilize	100	1.2	1.20	1.44	31	1.0	.83	.26
Disk	60	2.5	.67	1.00	78	1.8	.62	.87
Harrow	80	1.9	.50	.76	100	2.2	.58	1.28
Plant	100	1.0	6.95	6.95	100	1.0	6.75	6.75
Replant	20	1.0	2.75	.55	--	--	--	--
Cultivate	100	4.0	1.20	4.80	100	4.9	.69	3.38
Hoe	10	1.0	6.00	.60	34	1.3	6.18	2.73
Spray	100	5.7	1.50	8.55	100	6.4	.79	5.06
Total preharvest				37.42				28.53
Pick	100	7.0	19.04	133.28	100	6.0	19.77	118.62
Haul	100	7.0	3.41	23.87	100	6.0	2.74	16.44
Total harvest				157.15				135.06
Total man-hours				194.57				163.59
Total tractor-hours				Power-hours				Power-hours
Total truck-hours				25.53				16.03
Total horse-hours				19.95				13.98
				1.36				.10

1/ From 8 records with an average yield of 11.3 tons per acre.

2/ From 8 records with an average yield of 10.2 tons per acre.

Table 11.- Peas for processing: Man-and power-hours per acre, Southeastern intensive farming area, Pennsylvania, 1950 1/

Operation	Acreage covered			Man-hrs.			Operation			Acreage covered			Man-hrs.		
	Per-	cent-	age of:	Man-hrs.	per acre:	for	:	:	:	Per-	cent-	age of:	Man-hrs.	per acre:	for
	times:	over:	once	total	total	total				times:	over:	once	total	total	total
	Pct.	No.	Hrs.	Hrs.	Hrs.	Hrs.				Pct.	No.	Hrs.	Hrs.	Hrs.	Hrs.
Spread manure	63	1.0	6.45	4.06	4.06	4.06	:	:	:	45	1.0	6.22	2.80	2.80	2.80
Lime	22	1.0	.38	.08	.08	.08	:	:	:	10	1.0	.50	.05	.05	.05
Fertilize	74	1.0	.84	.62	.62	.62	:	:	:	100	1.0	1.51	1.51	1.51	1.51
Plow	100	1.0	1.69	1.69	1.69	1.69	:	:	:	93	1.8	.51	.85	.85	.85
Disk	81	2.2	.57	1.02	1.02	1.02	:	:	:	100	2.4	.41	.98	.98	.98
Harrow	91	1.6	.51	.74	.74	.74	:	:	:	100	1.0	21.56	21.56	21.56	21.56
Drill	100	1.0	1.11	1.11	1.11	1.11	:	:	:	100	3.6	1.24	4.46	4.46	4.46
Cultipack 2/	23	1.0	.41	.09	.09	.09	:	:	:	20	2.5	6.00	3.00	3.00	3.00
Pick up stones	2	1.0	.96	.02	.02	.02	:	:	:	100	3.2	1.05	3.36	3.36	3.36
Total preharvest	:	:	9.43	9.43	9.43	9.43	:	:	:	:	:	:	38.57	38.57	38.57
Now and windrow	100	1.0	2.20	2.20	2.20	2.20	:	:	:	100	1.0	30.33	30.33	30.33	30.33
Load and haul to viner	100	1.0	8.68	8.68	8.68	8.68	:	:	:	100	1.0	12.56	12.56	12.56	12.56
Total harvest	:	:	10.88	10.88	10.88	10.88	:	:	:	:	:	:	42.89	42.89	42.89
Total man-hours	:	:	20.31	20.31	20.31	20.31	:	:	:	:	:	:	81.46	81.46	81.46
Total tractor-hours	:	:	11.06	11.06	11.06	11.06	:	:	:	:	:	:	14.93	14.93	14.93
Total truck-hours	:	:	4.32	4.32	4.32	4.32	:	:	:	:	:	:	6.24	6.24	6.24
Total horse-hours	:	:	.16	.16	.16	.16	:	:	:	:	:	:	.07	.07	.07

1/ From 16 records with an average yield of 3,000 lbs. of shelled peas per acre.

2/ Includes spike-tooth harrows.

Table 12.- Cabbage for fresh market: Man-and power-hours per acre, Central dairy and general farming area, Pennsylvania, 1950 1/

Table 13.- Sweet corn: Man- and power-hours per acre, Southeastern intensive farming and Central dairy and general farming areas, Pennsylvania, 1950

Operation	Fresh market 1/						Processing 2/					
	Acreage covered			Man-hours			Acreage covered			Man-hours		
	Percent-	Times	Man-hours:	Man-hours:	Percent-	Times	Percent-	Times	Man-hours:	Man-hours:	Man-hours:	Man-hours:
	age of	over	per acre	per acre	age of	over	age of	over	per acre	per acre	per acre	per acre
	total		once over:	once over:	total		total		once over:	once over:	once over:	once over:
	Percent	Number	Hours	Hours	Percent	Number	Hours	Hours	Number	Hours	Hours	Hours
Spread manure	61	1.0	6.73	4.11	93	1.0	6.36	5.91				
Plow	100	1.0	2.20	2.20	100	1.0	2.04	2.04				
Harrow	94	2.9	.58	1.58	93	3.2	.44	1.31				
Disk	50	1.9	.51	.48	41	1.5	.65	.40				
Plant	100	1.1	.91	1.00	100	1.0	.78	.78				
Fertilize	--	--	--	--	6	1.0	.66	.04				
Cultipack	--	--	--	--	14	1.0	.55	.08				
Weeder 3/	14	1.3	.68	.12	--	--	--	--				
Cultivate	100	3.3	.93	3.07	100	3.4	.71	2.41				
Spray	18	1.0	.38	.07	7	1.0	.20	.01				
Total preharvest				12.63				12.98				
Harvest 4/	100	2.2	12.88	28.34	100	1.0	10.11	10.11				
Haul to market 5/	100	2.2	3.07	6.75	100	1.0	2.72	2.72				
Total harvest				35.09				12.83				
Total man-hours				47.72				25.81				
Total tractor-hours				Power-hours				Power-hours				
Total truck-hours				12.63				12.71				
				22.75				2.16				

1/ From 16 records with an average yield of 679.8 doz. ears per acre.

2/ From 14 records with an average yield of 3.0 tons per acre.

3/ Includes spike-tooth harrow.

4/ Includes hauling in and bagging the corn for fresh market.

5/ Includes retailing the corn for fresh market in some instances.

Table 14.- Apples: Man- and power-hours per acre, indicated areas, Pennsylvania, 1950

Operation	Southeastern						Central dairying and general farming area 2/					
	intensive farming area 1/			Man-hours			Acreage covered			Man-hours		
	Percent- age of	Times over	once over	Man-hours per acre	for total acreage	Hours	Percent- age of	Times over	once over	Man-hours per acre	for total acreage	Hours
	total	total	total	total	total	total	total	total	total	total	total	total
	Percent	Number	Hours	Hours	Hours	Hours	Percent	Number	Hours	Hours	Hours	Hours
Prune	95	1.0	18.95	18.00	18.00	18.00	94	1.0	16.66	15.66	15.66	15.66
Brush removal	95	1.0	6.24	5.93	5.93	5.93	94	1.0	3.92	3.68	3.68	3.68
Rodent control	25	1.3	2.00	.65	.65	.65	--	--	--	--	--	--
Cover crops 3/	18	1.0	1.09	.20	.20	.20	--	--	--	--	--	--
Mow	42	3.2	.74	.99	.99	.99	25	1.5	.86	.32	.32	.32
Cultivate	57	1.9	.77	.83	.83	.83	3	2.0	.80	.05	.05	.05
Fertilize	98	1.1	1.46	1.57	1.57	1.57	75	1.0	1.02	.77	.77	.77
Spray	100	9.5	1.65	15.68	15.68	15.68	100	9.3	1.50	13.95	13.95	13.95
Sucker	3	1.0	1.00	.03	.03	.03	--	--	--	--	--	--
Thin	11	1.0	20.00	2.20	2.20	2.20	12	1.0	15.00	1.80	1.80	1.80
Total preharvest				46.08		46.08				36.23		36.23
Pick	100	1.0	25.09	25.09	25.09	25.09	100	1.0	17.24	17.24	17.24	17.24
Haul, tree-run to market 4/	80	1.0	7.86	6.29	6.29	6.29	22	1.0	6.38	1.40	1.40	1.40
Haul to farm packing shed	20	1.0	5.45	1.09	1.09	1.09	78	1.0	4.02	3.14	3.14	3.14
Grade and pack	20	1.0	14.30	2.86	2.86	2.86	78	1.0	10.45	8.15	8.15	8.15
Haul from packing shed												
to market	20	1.0	8.00	1.60	1.60	1.60	78	1.0	6.50	5.07	5.07	5.07
Total harvest				36.93		36.93				35.00		35.00
Total man-hours				83.01		83.01				71.23		71.23
Total tractor-hours				Power-hours		Power-hours				Power-hours		Power-hours
Total truck-hours				10.64		10.64				9.15		9.15
Total horse-hours				7.88		7.88				7.56		7.56
				--		--				.36		.36

1/ From 11 records with an average yield of 191 bu. per acre.

2/ From 8 records with an average yield of 140 bu. per acre.

3/ Includes preparing land and seeding the cover crop.

4/ Hauled to commercial packing house, processor, or local shipping point.

Table 15.- Peaches and sour cherries: Man- and power-hours per acre, Southeastern intensive farming area, Pennsylvania, 1950

Operation	Peaches 1/						Sour cherries 2/					
	Acreage covered			Man-hours:			Acreage covered			Man-hours		
	Per-	cent-	age of:	Times : per acre :	once :	over :	Per-	cent-	age of:	Times : per acre :	once :	over :
	Pct.		total :		Hrs.	No.	Pct.		total :		Hrs.	No.
Prune	100	1.0	27.26	27.26	27.26	1.0	100	1.0	24.99	24.99	24.99	1.0
Brush removal	100	1.0	8.09	8.09	8.09	1.0	100	1.0	8.95	8.95	8.95	1.0
Cover crops 3/	2	6.0	.60	.07	.07	3.0	22	3.0	.80	.80	.53	3.0
Plow	9	1.0	.67	.06	.06	1.0	12	1.0	.67	.67	.08	1.0
Cultivate (tractor)	77	3.5	.99	2.67	2.67	2.2	51	2.2	.77	.77	.86	2.2
Cultivate (hand)	--	--	--	--	--	1.0	6	1.0	4.00	4.00	.24	1.0
Fertilize	100	1.3	1.27	1.65	1.65	75	75	1.0	1.57	1.57	1.18	1.0
Spray	100	9.0	1.73	15.57	15.57	100	100	7.8	1.55	1.55	12.09	7.8
Sucker	3	1.0	1.00	.03	.03	--	--	--	--	--	--	--
Thin	81	1.0	47.56	38.52	38.52	--	--	--	--	--	--	--
Total preharvest				93.92	93.92						48.92	
Pick	100	1.0	55.65	55.65	55.65	1.0	100	1.0	152.25	152.25	152.25	1.0
Haul to farm packing shed	8	1.0	9.52	.76	.76	--	--	--	--	--	--	--
Grade and pack	8	1.0	21.00	1.68	1.68	--	--	--	--	--	--	--
Haul to market	100	1.0	10.87	10.87	10.87	1.0	100	1.0	5.57	5.57	5.57	1.0
Total harvest				68.96	68.96						157.82	
Total man-hours				162.88	162.88						206.74	
Total tractor-hours				13.82	13.82						13.42	
Total truck-hours				7.37	7.37						3.66	

1/ From 11 records with an average yield of 245 bu. per acre.

2/ From 8 records with an average yield of 1.9 tons per acre.

3/ Includes land preparation for and seeding of cover crop.

Table 16. - Dairy cattle: Man-hours per milk cow, per 100 pounds of milk and per head of young stock, indicated areas, Pennsylvania, 1950

Area	Man-hours					
	Cows		Milk		Per head	
	Records	per herd	per cow	Per cow	cwt. milk	young stock
	Num-ber	Num-ber	Pounds	Hours	Hours	Hours
Southeastern Intensive Farming	39	17	6,710	135	2.01	29.44
Central Dairy and General Farming	40	14	6,198	134	2.16	26.46
Allegheny Plateau Dairy and General Farming	30	10	5,762	137	2.38	29.12
Northwestern and Northeastern Dairy	26	21	6,438	131	2.03	24.05
State	135	15	6,321	134	2.12	27.36

Table 17. - Milk Cows: Relation of size of herd and method of milking to man-hours of labor per head and per 100 pounds of milk, Pennsylvania, 1950

Size of herd	Method of milking	Cows		Milk		Man-hours	
		Records	per herd	per cow	Per cow	Per cwt. milk	
		Number	Number	Pounds	Hours	Hours	
1 to 4 cows	Hand	37	2	4,546	183	4.03	
5 - 14	Hand	10	9	5,891	166	2.82	
5 - 14	Machine	29	11	6,443	119	1.85	
15 or more	Machine	59	27	6,953	114	1.64	

Table 18. - Chickens: Man-hours for laying flocks, indicated areas, Pennsylvania, 1950

Area	:	:	Hens	:	Rate	:	Man-hours			
	:	Records	:	per	:	of	:	Per	:	Per 100
	:	:	:	flock	:	lay	:	hen	:	eggs
	:	<u>Number</u>	:	<u>Number</u>	:	<u>Eggs</u>	:	<u>Hours</u>	:	<u>Hours</u>
Southeastern Intensive Farming	:	40	:	348	:	146	:	2.19	:	1.50
Central Dairy and General Farming	:	49	:	744	:	145	:	2.17	:	1.50
Allegheny Plateau Dairy and General Farming	:	29	:	292	:	142	:	2.36	:	1.66
Northwestern and North-eastern Dairy	:	23	:	758	:	146	:	2.20	:	1.51
State	:	141	:	541	:	144	:	2.22	:	1.54

Table 19. - Chickens: Relation of size of laying flock to man-hours per hen and per 100 eggs, Pennsylvania, 1950

Size of flock	:	:	Rate	:	Man-hours	
	:	Records	:	of	:	Per
	:	:	:	lay	:	hen
	:	<u>Number</u>	:	<u>Eggs</u>	:	<u>Hours</u>
99 or fewer hens	:	43	:	144	:	4.50
100 - 399	:	51	:	143	:	2.44
400 or more	:	47	:	146	:	1.30
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:		:		:	
	:					

Table 20. - Chickens: Man-hours for replacement flocks, indicated areas, Pennsylvania, 1950

	:	:	Chickens	:	Man-hours	
Area	:	Records	:	per	per chicken	
	:	:	:	flock	:	raised
	:	<u>Number</u>	:	<u>Number</u>	:	<u>Hours</u>
Southeastern Intensive	:		:		:	
Farming	:	32	:	774	:	.43
Central Dairy and	:		:		:	
General Farming	:	42	:	692	:	.51
Allegheny Plateau Dairy	:		:		:	
and General Farming	:	24	:	515	:	.51
Northwestern and	:		:		:	
Northeastern Dairy	:	20	:	695	:	.46
State	:	118	:	706	:	.46

Table 21. Farm Maintenance: Man-hours per farm for all farm work and for farm maintenance, indicated areas, Pennsylvania, 1950

Area	Records	Man-hours per year		
		Farm maintenance		
		All farm:	Total	Percentage
		work	Hours	of all farm work
	<u>Number</u>	<u>Hours</u>	<u>Hours</u>	<u>Percent</u>
Southeastern Intensive Farming	26	4,739	566	11.9
Central Dairy and General Farming	28	6,497	640	9.9
Allegheny Plateau Dairy and General Farming	20	4,738	670	14.1
Northwestern and Northeastern Dairy	17	5,107	569	11.1
State	91	5,076	612	12.1

Table 22. - Farm Maintenance: Relation of size of farm to man-hours per farm for all farm work and for farm maintenance, Pennsylvania, 1950

Size of farm	Records	Man-hours per year		
		Farm maintenance		
		All farm:	Total	Percentage
		work	Hours	of all farm work
	<u>Number</u>	<u>Hours</u>	<u>Hours</u>	<u>Percent</u>
Under 70 acres	33	3,713	418	11.3
70 - 139 acres	29	5,495	703	12.8
140 acres and over	29	7,436	902	12.1